

Exploring Aeronautics			
2006 Mathematics			
Grade Level and Grade Span Expectations			
Rhode Island Mathematics			
Grade 5			
Activity/Lesson	State	Standards	
Fundamentals of Aeronautics (145-176)	RI	MA.5.M(DSP)-5-3a	Organizes and displays data using tables, bar graphs, or line graphs to answer questions related to the data, to analyze the data to formulate or justify conclusions, to make predictions, or to solve problems.
Fundamentals of Aeronautics (145-176)	RI	MA.5.M(DSP)-5-6	In response to a teacher or student generated question or hypothesis decides the most effective method (e.g., survey, observation, experimentation) to collect the data (numerical or categorical) necessary to answer the question; collects, organizes, and appropriately displays the data; analyzes the data to draw conclusions about the question or hypothesis being tested, and when appropriate makes predictions; and asks new questions and makes connections to real world situations.
Tools of Aeronautics(257-326)	RI	MA.5.M(G&M)-5-5	Demonstrates conceptual understanding of similarity by describing the proportional effect on the linear dimensions of triangles and rectangles when scaling up or down while preserving angle measures, or by solving related problems (including applying scales on maps). Describes effects using models or explanations.
The Tools of Aeronautics	RI	MA.5.M(G&M)-5-5	Demonstrates conceptual understanding of similarity by describing the proportional effect on the linear dimensions of triangles and rectangles when scaling up or down while preserving angle measures, or by solving related problems (including applying scales on maps). Describes effects using models or explanations.
The Resource Center	RI	MA.5.M(N&O)-5-2	Demonstrates understanding of the relative magnitude of numbers by ordering, comparing, or identifying equivalent positive fractional numbers, decimals, or benchmark percents within number formats (fractions to fractions, decimals to decimals, or percents to percents); or integers in context using models or number lines.

Science of Flight	RI	MA.5.M(DSP)-5-6	In response to a teacher or student generated question or hypothesis decides the most effective method (e.g., survey, observation, experimentation) to collect the data (numerical or categorical) necessary to answer the question; collects, organizes, and appropriately displays the data; analyzes the data to draw conclusions about the question or hypothesis being tested, and when appropriate makes predictions; and asks new questions and makes connections to real world situations.
Integrating with Aeronautics	RI	MA.5.M(N&O)-5-3b	Demonstrates conceptual understanding of mathematical operations by describing or illustrating the meaning of a remainder with respect to division of whole numbers using models, explanations, or solving problems.
Integrating with Aeronautics	RI	MA.5.M(F&A)-5-3	Demonstrates conceptual understanding of algebraic expressions by using letters to represent unknown quantities to write linear algebraic expressions involving any two of the four operations; or by evaluating linear algebraic expressions using whole numbers.
Scientific Method(124-144)	RI	MA.5.M(DSP)-5-3a	Organizes and displays data using tables, bar graphs, or line graphs to answer questions related to the data, to analyze the data to formulate or justify conclusions, to make predictions, or to solve problems.
Scientific Method(124-144)	RI	MA.5.M(DSP)-5-6	In response to a teacher or student generated question or hypothesis decides the most effective method (e.g., survey, observation, experimentation) to collect the data (numerical or categorical) necessary to answer the question; collects, organizes, and appropriately displays the data; analyzes the data to draw conclusions about the question or hypothesis being tested, and when appropriate makes predictions; and asks new questions and makes connections to real world situations.
Exploring Aeronautics			
2006 Mathematics			
Grade Level and Grade Span Expectations			
Rhode Island Mathematics			
Grade 6			
Activity/Lesson	State	Standards	
Fundamentals of Aeronautics (145-176)	RI	MA.6.M(DSP)-6-1	Interprets a given representation (circle graphs, line graphs, or stem-and-leaf plots) to answer questions related to the data, to analyze the data to formulate or justify conclusions, to make predictions, or to solve problems.

Fundamentals of Aeronautics (145-176)	RI	MA.6.M(DSP)-6-2	Analyzes patterns, trends or distributions in data in a variety of contexts by determining or using measures of central tendency (mean, median, or mode) or dispersion (range) to analyze situations, or to solve problems.
Fundamentals of Aeronautics (145-176)	RI	MA.6.M(DSP)-6-6	In response to a teacher or student generated question or hypothesis decides the most effective method (e.g., survey, observation, experimentation) to collect the data (numerical or categorical) necessary to answer the question; collects, organizes, and appropriately displays the data; analyzes the data to draw conclusions about the question or hypothesis being tested, and when appropriate makes predictions; and asks new questions and makes connections to real world situations.
The Tools of Aeronautics	RI	MA.6.M(DSP)-6-5a	For a probability event in which the sample space may or may not contain equally likely outcomes, predicts the theoretical probability of an event and tests the prediction through experiments and simulations; and designs fair games.
Science of Flight	RI	MA.6.M(DSP)-6-5a	For a probability event in which the sample space may or may not contain equally likely outcomes, predicts the theoretical probability of an event and tests the prediction through experiments and simulations; and designs fair games.
Integrating with Aeronautics	RI	MA.6.M(N&O)-6-7	Makes estimates in a given situation by identifying when estimation is appropriate, selecting the appropriate method of estimation, determining the level of accuracy needed given the situation, analyzing the effect of the estimation method on the accuracy of results, and evaluating the reasonableness of solutions appropriate to grade level GLEs across content strands.
Integrating with Aeronautics	RI	MA.6.M(G&M)-6-7	Measures and uses units of measures appropriately and consistently, and makes conversions within systems when solving problems across the content strands.
Intro to Aeronautics (109-123)	RI	MA.6.M(DSP)-6-6	In response to a teacher or student generated question or hypothesis decides the most effective method (e.g., survey, observation, experimentation) to collect the data (numerical or categorical) necessary to answer the question; collects, organizes, and appropriately displays the data; analyzes the data to draw conclusions about the question or hypothesis being tested, and when appropriate makes predictions; and asks new questions and makes connections to real world situations.

Scientific Method(124-144)	RI	MA.6.M(DSP)-6-2	Analyzes patterns, trends or distributions in data in a variety of contexts by determining or using measures of central tendency (mean, median, or mode) or dispersion (range) to analyze situations, or to solve problems.
Scientific Method(124-144)	RI	MA.6.M(DSP)-6-3	Organizes and displays data using tables, line graphs, or stem-and-leaf plots to answer questions related to the data, to analyze the data to formulate or justify conclusions, to make predictions, or to solve problems.
Scientific Method(124-144)	RI	MA.6.M(DSP)-6-5a	For a probability event in which the sample space may or may not contain equally likely outcomes, predicts the theoretical probability of an event and tests the prediction through experiments and simulations; and designs fair games.
Scientific Method(124-144)	RI	MA.6.M(DSP)-6-6	In response to a teacher or student generated question or hypothesis decides the most effective method (e.g., survey, observation, experimentation) to collect the data (numerical or categorical) necessary to answer the question; collects, organizes, and appropriately displays the data; analyzes the data to draw conclusions about the question or hypothesis being tested, and when appropriate makes predictions; and asks new questions and makes connections to real world situations.

Exploring Aeronautics

2006 Mathematics

Grade Level and Grade Span Expectations

Rhode Island Mathematics			
Grade 7			
Activity/Lesson	State	Standards	
Fundamentals of Aeronautics (145-176)	RI	MA.7.M(G&M)-7-5	Applies concepts of similarity by solving problems involving scaling up or down and their impact on angle measures, linear dimensions and areas of polygons, and circles when the linear dimensions are multiplied by a constant factor. Describes effects using models or explanations.
Fundamentals of Aeronautics (145-176)	RI	MA.7.M(F&A)-7-1	Identifies and extends to specific cases a variety of patterns (linear and nonlinear) represented in models, tables, sequences, graphs, or in problem situations; and generalizes a linear relationship using words and symbols; generalizes a linear relationship to find a specific case; or writes an expression or equation using words or symbols to express the generalization of a nonlinear relationship.

Fundamentals of Aeronautics (145-176)	RI	MA.7.M(DSP)-7-6	In response to a teacher or student generated question or hypothesis decides the most effective method (e.g., survey, observation, experimentation) to collect the data (numerical or categorical) necessary to answer the question; collects, organizes, and appropriately displays the data; analyzes the data to draw conclusions about the question or hypothesis being tested while considering the limitations that could affect interpretations; and when appropriate makes predictions; and asks new questions and makes connections to real world situations.
Wings(177-208)	RI	MA.7.M(G&M)-7-10	Demonstrates conceptual understanding of spatial reasoning and visualization by sketching three-dimensional solids; and draws nets of rectangular and triangular prisms, cylinders, and pyramids and uses the nets as a technique for finding surface area.
Airplane Control(209-256)	RI	MA.7.M(G&M)-7-5	Applies concepts of similarity by solving problems involving scaling up or down and their impact on angle measures, linear dimensions and areas of polygons, and circles when the linear dimensions are multiplied by a constant factor. Describes effects using models or explanations.
The Tools of Aeronautics	RI	MA.7.M(DSP)-7-5a	For a probability event in which the sample space may or may not contain equally likely outcomes, predicts the theoretical probability of an event and tests the prediction through experiments and simulations; and compares and contrasts theoretical and experimental probabilities.
Science of Flight	RI	MA.7.M(DSP)-7-6	In response to a teacher or student generated question or hypothesis decides the most effective method (e.g., survey, observation, experimentation) to collect the data (numerical or categorical) necessary to answer the question; collects, organizes, and appropriately displays the data; analyzes the data to draw conclusions about the question or hypothesis being tested while considering the limitations that could affect interpretations; and when appropriate makes predictions; and asks new questions and makes connections to real world situations.

Integrating with Aeronautics	RI	MA.7.M(F&A)-7-1	Identifies and extends to specific cases a variety of patterns (linear and nonlinear) represented in models, tables, sequences, graphs, or in problem situations; and generalizes a linear relationship using words and symbols; generalizes a linear relationship to find a specific case; or writes an expression or equation using words or symbols to express the generalization of a nonlinear relationship.
Integrating with Aeronautics	RI	MA.7.M(F&A)-7-2	Demonstrates conceptual understanding of linear relationships ($y = kx$; $y = mx + b$) as a constant rate of change by solving problems involving the relationship between slope and rate of change, by describing the meaning of slope in concrete situations, or informally determining the slope of a line from a table or graph; and distinguishes between constant and varying rates of change in concrete situations represented in tables or graphs; or describes how change in the value of one variable relates to change in the value of a second variable in problem situations with constant rates of change.
Integrating with Aeronautics	RI	MA.7.M(DSP)-7-1	Interprets a given representation (circle graphs, scatter plots that represent discrete linear relationships, or histograms) to analyze the data to formulate or justify conclusions, to make predictions, or to solve problems.
Intro to Aeronautics (109-123)	RI	MA.7.M(DSP)-7-1	Interprets a given representation (circle graphs, scatter plots that represent discrete linear relationships, or histograms) to analyze the data to formulate or justify conclusions, to make predictions, or to solve problems.
Intro to Aeronautics (109-123)	RI	MA.7.M(DSP)-7-6	In response to a teacher or student generated question or hypothesis decides the most effective method (e.g., survey, observation, experimentation) to collect the data (numerical or categorical) necessary to answer the question; collects, organizes, and appropriately displays the data; analyzes the data to draw conclusions about the question or hypothesis being tested while considering the limitations that could affect interpretations; and when appropriate makes predictions; and asks new questions and makes connections to real world situations.
Scientific Method(124-144)	RI	MA.7.M(DSP)-7-1	Interprets a given representation (circle graphs, scatter plots that represent discrete linear relationships, or histograms) to analyze the data to formulate or justify conclusions, to make predictions, or to solve problems.

Scientific Method(124-144)	RI	MA.7.M(DSP)-7-3a	Organizes and displays data using tables, line graphs, scatter plots, and circle graphs to answer questions related to the data, to analyze the data to formulate or justify conclusions, to make predictions, or to solve problems.
Scientific Method(124-144)	RI	MA.7.M(DSP)-7-6	In response to a teacher or student generated question or hypothesis decides the most effective method (e.g., survey, observation, experimentation) to collect the data (numerical or categorical) necessary to answer the question; collects, organizes, and appropriately displays the data; analyzes the data to draw conclusions about the question or hypothesis being tested while considering the limitations that could affect interpretations; and when appropriate makes predictions; and asks new questions and makes connections to real world situations.
Exploring Aeronautics			
2006 Mathematics			
Grade Level and Grade Span Expectations			
Rhode Island Mathematics			
Grade 8			
Activity/Lesson	State	Standards	
Fundamentals of Aeronautics (145-176)	RI	MA.8.M(DSP)-8-6	In response to a teacher or student generated question or hypothesis decides the most effective method (e.g., survey, observation, experimentation) to collect the data (numerical or categorical) necessary to answer the question; collects, organizes, and appropriately displays the data; analyzes the data to draw conclusions about the question or hypothesis being tested while considering the limitations that could affect interpretations; and when appropriate makes predictions; and asks new questions and makes connections to real world situations.
Wings(177-208)	RI	MA.8.M(G&M)-8-5	Applies concepts of similarity to determine the impact of scaling on the volume or surface area of three-dimensional figures when linear dimensions are multiplied by a constant factor; to determine the length of sides of similar triangles, or to solve problems involving growth and rate.

The Tools of Aeronautics	RI	MA.8.M(DSP)-8-5	For a probability event in which the sample space may or may not contain equally likely outcomes, determines the experimental or theoretical probability of an event in a problem-solving situation; and predicts the theoretical probability of an event and tests the prediction through experiments and simulations; and compares and contrasts theoretical and experimental probabilities.
The Resource Center	RI	MA.8.M(N&O)-8-2	Demonstrates understanding of the relative magnitude of numbers by ordering or comparing rational numbers, common irrational numbers (e.g., "square root" of 2, pi), numbers with whole number or fractional bases and whole number exponents, square roots, absolute values, integers, or numbers represented in scientific notation using number lines or equality and inequality symbols.
Science of Flight	RI	MA.8.M(DSP)-8-6	In response to a teacher or student generated question or hypothesis decides the most effective method (e.g., survey, observation, experimentation) to collect the data (numerical or categorical) necessary to answer the question; collects, organizes, and appropriately displays the data; analyzes the data to draw conclusions about the question or hypothesis being tested while considering the limitations that could affect interpretations; and when appropriate makes predictions; and asks new questions and makes connections to real world situations.
Integrating with Aeronautics	RI	MA.8.M(F&A)-8-1	Identifies and extends to specific cases a variety of patterns (linear and nonlinear) represented in models, tables, sequences, graphs, or in problem situations; and generalizes a linear relationship (non-recursive explicit equation); generalizes a linear relationship to find a specific case; generalizes a nonlinear relationship using words or symbols; or generalizes a common nonlinear relationship to find a specific case.

Intro to Aeronautics (109-123)	RI	MA.8.M(DSP)-8-6	In response to a teacher or student generated question or hypothesis decides the most effective method (e.g., survey, observation, experimentation) to collect the data (numerical or categorical) necessary to answer the question; collects, organizes, and appropriately displays the data; analyzes the data to draw conclusions about the question or hypothesis being tested while considering the limitations that could affect interpretations; and when appropriate makes predictions; and asks new questions and makes connections to real world situations.
Scientific Method(124-144)	RI	MA.8.M(DSP)-8-1	Interprets a given representation (line graphs, scatter plots, histograms, or box-and-whisker plots) to analyze the data to formulate or justify conclusions, to make predictions, or to solve problems.
Scientific Method(124-144)	RI	MA.8.M(DSP)-8-6	In response to a teacher or student generated question or hypothesis decides the most effective method (e.g., survey, observation, experimentation) to collect the data (numerical or categorical) necessary to answer the question; collects, organizes, and appropriately displays the data; analyzes the data to draw conclusions about the question or hypothesis being tested while considering the limitations that could affect interpretations; and when appropriate makes predictions; and asks new questions and makes connections to real world situations.